AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions and listings of claims in the application.

1. (Currently Amended) An apparatus for generating corona discharges, comprising

a structure defining a corona discharge space;

a discharge electrode disposed in the corona discharge space; ~~as well as~~

a high voltage source~~, an output of which is connected to the discharge electrode,~~; and

a diode element connected between the high voltage source and the discharge electrode, the diode element delivering to the discharge electrode a positive DC high voltage component comprising a superposed AC high voltage component

~~wherein at least one element having diode functionality is connected between the high voltage source and the discharge electrode, which element delivers a DC high voltage component comprising a superposed AC high voltage component on the discharge electrode~~.

2. (Currently Amended) An apparatus according to claim 1, wherein the diode element ~~having diode functionality is a semiconductor, which is configured as~~ comprises at least one of a rectifier, a transistor, a diode, or a thryistor~~, for example~~.

3. (Currently Amended) An apparatus according to claim 1 ~~or 2~~, wherein the diode element ~~having diode functionality is configured as~~ comprises a single-phase rectifier.

4. (Currently Amended) An apparatus according to claim 1 ~~or 2~~, wherein the diode element ~~having diode functionality is configured as~~ comprises a bridge rectifier.

5. (Currently Amended) An apparatus according to claim 1, wherein the positive DC high voltage is 10-60 kV.

6. (Currently Amended) An apparatus according to claim 1, wherein ~~the frequency of~~ the AC high voltage [[is]] has a frequency of 0.1-100 kHz.

7. (Currently Amended) An apparatus according to claim 1, wherein the discharge electrode [[is]] comprises an elongated body having a plurality of projecting members ~~several projecting edges or cams~~.

8. (Currently Amended) An apparatus according to claim 7, wherein [[said]] the projecting [[edges]] members extend on either side of [[said]] the body.

9. (Currently Amended) An apparatus according to claim 1, wherein the structure defining the corona discharge space ~~is built up of~~ comprises at least two parallel, electrically earthed plates, ~~between which plates~~ the discharge electrode ~~extends~~ extending in parallel with and between the plates ~~relationship therewith~~.

10. (Currently Amended) An apparatus according to claim 1, comprising an inductance-resistance circuit connected to the discharge electrode, wherein the diode element is connected in series with the inductance-resistance circuit ~~having diode functionality is connected in series with an LR-circuit, which LR-circuit is connected to the discharge electrode~~.

11. (Currently Amended) An apparatus according to claim 10, wherein the inductance-resistance circuit has an adjustable inductance value ~~the induction value L of the LR-circuit is adjustable~~.

12. (Currently Amended) An apparatus according to claim 10 ~~or 11~~, wherein [[said]] the inductance value of the inductance-resistance circuit ranges between 1 nH and 1000 mH.

13. (Currently Amended) An apparatus according to claim 1, wherein the high voltage source [[is]] comprises an ~~AC/DC~~ AC-to-DC pulse converter.

14. (Currently Amended) An apparatus according to, claim 1, wherein the high voltage source [[is]] comprises an ~~AC/DC/AC~~ AC-to-DC-to-AC converter.

15. (Currently Amended) A discharge electrode, disposed within a structure defining a corona discharge space, for ~~use in an apparatus according to claim 1 and as defined in claim 7 or 8~~ generating corona discharges, the discharge electrode receiving from a diode element a positive DC high voltage component comprising a superposed AC high voltage component, the discharge electrode comprising:

an elongated body having a plurality of projecting members extending on at least one side of the body,

wherein the elongated body comprises at least one elongated strip with the projecting members separated by punched-out spaces.

16. (Currently Amended) An apparatus according to claim [[5]] 1, wherein the DC high voltage is 5-35 kV.

17. (Previously Presented) An apparatus according to claim 6, wherein the frequency of the AC high voltage is 5-30 kHz.

18. (New) The discharge electrode according to claim 15, wherein the projecting members comprise a plurality of cams formed in series along the elongated strip.

19. (New) The discharge electrode according to claim 19, wherein a spacing between successive cams is 1-100 mm.

20. (New) The apparatus according to claim 1, wherein the diode element delivers to the discharge electrode the positive DC voltage component comprising the superposed AC high voltage component so as to form a positive streamer corona plasma within the corona discharge space.